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09/928,449	08/14/2001	Mitsuru Kondo	2001-1086A	8131

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EXAMINER

MARTIR, LILYBETT

ART UNIT	PAPER NUMBER
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2855

DATE MAILED: 05/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/928,449

Applicant(s)

KONDO ET AL.

Examiner

Lilybett Martir

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 14-16, 18-24 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-16, 18-24 and 29-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 14-19 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al. (JP 63313007) in view of Itoh et al. (Pat. 4,112,746).

- With respect to claim 14, Matsuda et al. teaches providing two marks as in elements 2 and 3 on a rotational surface as in element 1 such that at the mark 2 is inclined relative to an axial direction of the rotary shaft as noted in Figure 1; providing a sensor as are elements 4 and 5 opposite to the rotational surface of the rotary shaft 1, the at least one sensor being operable to generate pulses when the marks pass the sensor during rotation of the rotary shaft (See Constitution); and measuring the axial elongation of the rotary shaft (See Purpose). Matsuda et al. clearly discloses the use of a computer device as in element 7, which is operable to determine changes in interval ratios, since it is well known in the art that computers are capable of performing mathematical manipulations of data. Matsuda et al. also discloses the use of a reference mark as in element 3 that is arranged in a similar manner when contrasted to the reference mark disclosed in Figure 5 as submitted by

the applicant, and a mark as in element 2 that resembles applicant's groove 20 since they are both inclined in a similar manner towards the axis of the shaft, such that it could be concluded that the interval between said marks 2 and 3 differ according to an axial directional position of the rotary shaft. Matsuda et al. fails to teach the re-orientation of one of the markings to therefore the two markings are oppositely inclined to one another, and the calculation of the resulting data by monitoring a change in interval ratio. Itoh et al. teaches a tensile testing system that comprises markings as in elements 44 which are monitored to detect the elongation of a specimen 40 in which the length of the specimen that undergoes distention in which a ratio computing circuit is utilized for said purpose (Col. 32, lines 40-43) for the means of comparison and for determining a variation in elongation or distance. Since it has been held that rearranging parts of an invention involves only routine skill in the art (In re Japikse, 86 USPQ70), It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the teachings of the axial elongation measuring device of Matsuda et al. utilizing the teachings of the varying length monitoring device of Itoh et al. by merely duplicating the utilization of slanted markings to therefore make said device highly accurate over a wide measurement range, and also it would have been obvious at the time the invention was made to a person having ordinary skill in the art to

modify the axial elongation measurement system of Matsuda et al. using the teachings of the tensile testing system of Itoh et al. by determining a length by means of determining variations in the ratio of pulses to obtain length or distance measurements since this only involves a mathematical manipulation of data that are well known in the art, which is commonly utilized to represent in an accurate and reliable manner results obtained in the field of measuring and testing, and since the ratio between two quantities is commonly known and used to describe the variation or change between a first value and a second value.

- With respect to claims 15 and 30, Matsuda et al. teaches marks comprising a reference mark as in element 3 and a measuring mark as in element 2. Matsuda et al. also discloses the use of a reference mark as in element 3 that is arranged in a similar manner when contrasted to the reference mark disclosed in Figure 5 as submitted by the applicant, and a mark as in element 2 that resembles applicant's groove 20 since they are both inclined in a similar manner towards the axis of the shaft, such that it could be concluded that the interval between said marks 2 and 3 differ according to an axial directional position of the rotary shaft.

Matsuda et al. fails to specifically teach the utilization of an interval ratio of the time for detection of the reference mark until detection of the measuring mark to the time it takes for one rotation of the rotary shaft as determined by the sensor. It would have been obvious at the time the

invention was made to a person having ordinary skill in the art to modify the axial elongation measurement system of Matsuda et al. using the teachings of the tensile testing system of Itoh et al. by determining a length by means of determining variations in the ratio of pulses to obtain length or distance measurements since this only involves a mathematical manipulation of data that are well known in the art, which is commonly utilized to represent in an accurate and reliable manner results obtained in the field of measuring and testing, and since the ratio between two quantities is commonly known and used to describe the variation or change between a first value and a second value.

- With respect to claims 16 and 31 Matsuda et al. teaches one sensor being fixed as are elements 4 and 5.
- With respect to claim 18, Matsuda et al. teaches two marks as in elements 2 and 3 on a rotational surface as in element 1 such that at least one of the marks is inclined relative to an axial direction of the rotary shaft as noted in Figure 1; a sensor as are elements 4 and 5 opposite to the rotational surface of the rotary shaft 1, the sensor being operable to generate pulses when the marks pass the sensor during rotation of the rotary shaft (See Constitution); and a data processing part as in element 7 for determining the axial elongation of the rotary shaft (See Purpose). Matsuda et al. also discloses the use of a reference mark as in element 3 that is arranged in a similar manner when contrasted to

the reference mark disclosed in Figure 5 as submitted by the applicant, and a mark as in element 2 that resembles applicant's groove 20 since they are both inclined in a similar manner towards the axis of the shaft, such that it could be concluded that the interval between said marks 2 and 3 differ according to an axial directional position of the rotary shaft. Matsuda et al. fails to teach the re-orientation of one of the markings to therefore the two markings are oppositely inclined to one another, and the calculation of the resulting data by monitoring a change in interval ratio. Itoh et al. teaches a tensile testing system that comprises markings as in elements 44 which are monitored to detect the elongation of a specimen 40 in which the length of the specimen that undergoes distention in which a ratio computing circuit is utilized for said purpose (Col. 32, lines 40-43) for the means of comparison and for determining a variation in elongation or distance. Since it has been held that rearranging parts of an invention involves only routine skill in the art (In re Japikse, 86 USPQ70), It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the teachings of the axial elongation measuring device of Matsuda et al. utilizing the teachings of the varying length monitoring device of Itoh et al. by merely duplicating the utilization of slanted markings to therefore make said device highly accurate over a wide measurement range, and also it would have been obvious at the time the invention was made to a

person having ordinary skill in the art to modify the axial elongation measurement system of Matsuda et al. using the teachings of the tensile testing system of Itoh et al. by determining a length by means of determining variations in the ratio of pulses to obtain length or distance measurements since this only involves a mathematical manipulation of data that are well known in the art, which is commonly utilized to represent in an accurate and reliable manner results obtained in the field of measuring and testing, and since the ratio between two quantities is commonly known and used to describe the variation or change between a first value and a second value.

- With respect to claim 19, Matsuda et al. teaches a plurality of marks comprising a reference mark as in element 3 and a measuring mark as in element 2.

3. Claims 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al. in view of Itoh et al. as applied to claims 18 and 19 above, and further in view of Hochstein (Pat. 4,712,432). Matsuda et al. Teaches the claimed invention, except for:

- With respect to claims 20, Matsuda et al. fails to teach the utilization of a specific shape so that the marks are formed as two grooves provided in a "V" shape. Hochstein et al. teaches a shaft as in element 34 that has a pair of slots or grooves as in elements 38 and 40 oriented in a "V" shape as noted in Figure 3. Since the claimed modifications merely constitute a



change in the shape of a known element in a known apparatus, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the axial elongation measuring apparatus of Matsuda et al. using the teachings of Hochstein et al. by modifying the shape of the makings or grooves making them in the shape of a "V" shape for the purpose of experimentally determining a shape of said grooves that would allow said measurements to be made over wide measurement ranges therefore making said apparatus versatile and reliable.

4. Claims 21-24 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al. in view of Itoh et al. as applied to claims 18 and 19 above, and further in view of Savage et al. (Pat. 5,315,881).

- With respect to claim 22, Matsuda et al. fails to teach two marks being two wire members fitted in a turned "V" shape. Hochstein et al. teaches a shaft as in element 34 that has a pair of slots or grooves as in elements 38 and 40 oriented in a "V" shape as noted in Figure 3. Since the claimed modifications merely constitute a change in the shape of a known element in a known apparatus, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the axial elongation measuring apparatus of Matsuda et al. using the teachings of Hochstein et al. by modifying the shape of the makings or grooves making them in the shape of a "V" shape for the purpose of

experimentally determining a shape of said grooves that would allow said measurements to be made over wide measurement ranges therefore making said apparatus versatile and reliable. Savage et al. teaches a sensor that is comprised by a shaft as in element 12 that has a pair of wires as in elements 20 fitted onto said shaft. It would also have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the axial elongation measuring apparatus of Matsuda et al. using the teachings of Savage et al. by utilizing wire member fitted in the shaft as the markings therefore lowering the time of production and simplifying the sensing device structure.

- With respect to claims 21,23,24 and 29, Matsuda et al. fails to specifically teach which type of sensor he is using, and if any of said sensors are any of a capacitance type sensor, eddy current gap sensor, or photoelectric sensor. Savage et al. teaches the utilization of pickup coils as in elements 22 and 24 as part of an inductive-magnetic sensing device, as noted in Figure 1. It would also have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the axial elongation measuring apparatus of Matsuda et al. using the teachings of Savage et al. by utilizing an induced current sensor to measure the variations in the magnetic field produced by the rotating shaft and the inductance for the purpose of providing said measuring device with a sensor that is well known in the art and that would allow the

necessary measurements to be obtained therefore making a measuring device that is versatile and reliable.

5. Claims 21,23,24 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al. in view of Itoh et al. as applied to claims 18 and 19 above, and further in view of Karim-Panahi et al. (Pat. 5,438,882).

- With respect to claims 21,23,24 and 29, Matsuda et al. fails to specifically teach which type of sensor he is using such as a sensor that is a photoelectric sensor. Karim-Panahi et al. teaches a rotating shaft sensor that comprises two photodetecting sensors as in elements 8 and 8' that produce variations in the phase difference of pulse trains. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the axial elongation measuring apparatus of Matsuda et al. using the teachings of the sensor of Karim-Panahi et al. by providing said measuring apparatus with photoelectric sensors for the purpose of providing said measuring device with a sensor that is well known in the art and that would allow the necessary measurements to be obtained therefore making a measuring device that is versatile and reliable.

### ***Response to Arguments***

6. Applicant's arguments filed July January 23, 2002 have been fully considered but they are not persuasive. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be

established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both inventions explore and define the axial elongation of specimens, in which observations are made in a similar manner. One of ordinary skill in the art would have expected in such case that the manipulation of data from both references could exist without departing from the structural scope of the invention.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilybett Martir whose telephone number is (703)305-6900. The examiner can normally be reached on 9:00 AM to 5:30 PM.
8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (703)305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3432 for regular communications and (703)305-3432 for After Final communications.
9. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

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Lilybett Martir  
Examiner  
Art Unit 2855



May 16, 2003



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